Newsletter of the National Biological Information Infrastructure

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NBII Home Page Redesign Is Coming

The NBII Web site <www.nbii.gov> will soon have a redesigned home page to better present the variety and depth of content available through the NBII.

The NBII's current home page has been in place for several years, which is a very long time in Web terms. The intention of the redesign is to give the "face" of the NBII a more contemporary look, as well as to improve the home page's function as the primary navigational page for exploring the entire site's offerings.

A team of NBII staff has been gathering information about the most attractive and interesting features of current federal Web sites, and team members have surveyed their NBII colleagues about their own ideas for revamping the home page.

The new home page design will include the use of changing, high-quality graphics, many drawn from the images to be found in the NBII Digital Image Library, that convey the NBII's focus on biodiversity issues and information.

Another change will be the incorporation of RSS ("Really Simple Syndication") feeds to bring changing content to the home page on a frequent basis. The design team will be experimenting with a wide range of RSS sources with the goal of making the home page a place to which users will want to return regularly.

The new home page will offer several ways to present the "deep content" of the NBII, so users will encounter a changing exhibit reflecting the information and features to be found all over the NBII network. Information from all of the NBII geographical and thematic nodes will be featured on a revolving basis, so the home page will become a window into the variety and breadth of the entire site.

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Web 2.0 Highlight: Species Mashup

In the fall 2008 issue of *Access*, we said that the NBII is moving toward Web 2.0 technologies to improve access to biological content. One of the best examples of Web 2.0 technologies already being implemented comes to us from the NBII Southern Appalachian Information Node (SAIN) and their species mashup.

A *mashup* is an application that combines content from several sources to create a single information resource. By using mashups, NBII users will have access to information from a variety of relevant content sources without having to visit multiple sites. A species mashup can contain such things as information on the specific habitat, location, and distribution of species, along with details of its life history.

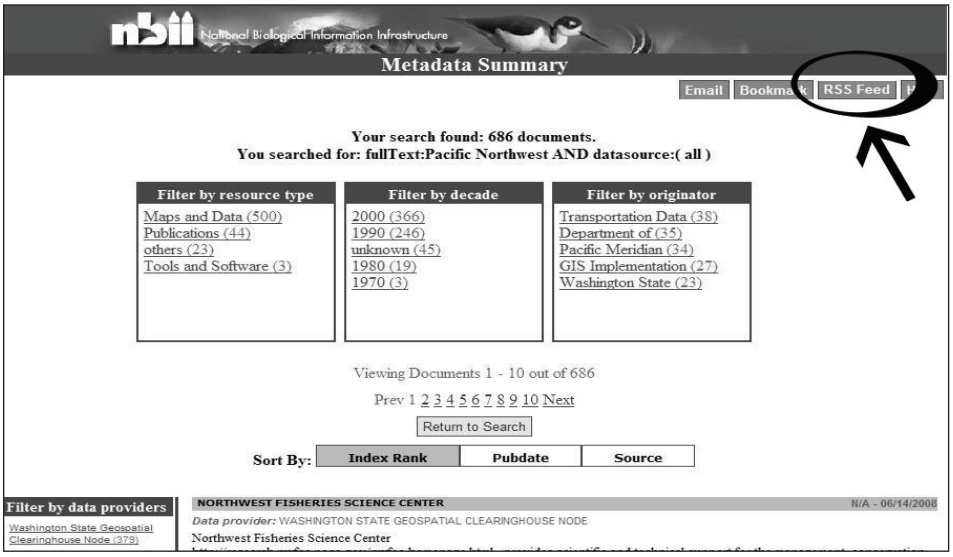
SAIN has demonstrated this concept by creating mashups for the species that are considered to be of Greatest Conservation Need (GCN) in the Southeast. Over 1,000 species have been identified in the State Wildlife Action Plans (SWAPs) of eight southeastern states (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee).

In this initial implementation, content is being excerpted from the following sources: Integrated Taxonomic Information System (ITIS),

(Continued on page 3)

In This Issue

Creative Ways to Use the NBII Metadata Clearinghouse: RSS Feeds



The NBII has trained hundreds of scientists, researchers, data managers, and geographers from myriad organizations in the creation of metadata for digital geospatial data. As a result, there has been a dramatic increase in the number of records held in the NBII Metadata Clearinghouse. In six years, the Clearinghouse has gone from 7,000 records to over 43,000.

The number of partners sharing metadata records has increased significantly as well. The Clearinghouse has been a critical component in the way that the NBII demonstrates the wide variety of data available in the field of biological sciences. As metadata has been a federal requirement for over a decade, the repositories can now be used for many different tasks. Users of the Clearinghouse are able to discover data available to them for use in science or in the formation of new research partners.

Descriptions of data relative to a region or scientific focus area can be pushed out of the Clearinghouse using a Web 2.0 technology: the RSS feed. RSS, otherwise known as "Really Simple Syndication," is used regularly by the NBII to provide users with a subset of useful information on a particular topic. RSS feeds from the Clearinghouse function in a similar manner.

Creating an RSS feed from the Metadata Clearinghouse is easy. First, visit the Clearinghouse at <http://mercury.ornl.gov/nbii>. Using either the Simple or Advanced Search interfaces, create a query about a topic of interest. This topic could be broad or very complex and specific.

From the search results page, click the "RSS Feed" button. You will see a Web page that says "NBII Clearinghouse Search Results RSS Feed." Click on "Subscribe to this Feed." Name your feed and click "Subscribe." Confirmation that you have successfully created a feed will appear. Click on "View Feed Properties" and name your feed.

To find the feed later, in Internet Explorer 7.0, click the yellow star in the left corner of the browser navigation bar. The feed can be published to a Web page to push information out, or referred to in research. Each time the feed is accessed on the computer, the Clearinghouse performs a new search on the original query. New records that have been added to the Clearinghouse since the last check of the feed will be displayed. Therefore, it is possible to stay up-to-date on data that is being developed in a given field of interest.

To learn more about RSS feeds using the NBII Clearinghouse, contact Viv Hutchison at <vhutchison@usgs.gov> or call 206/526-6282 x329.

Access

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Be sure to check out Access online at <www.nbii.gov>→ Toolkit→ Publications Library.

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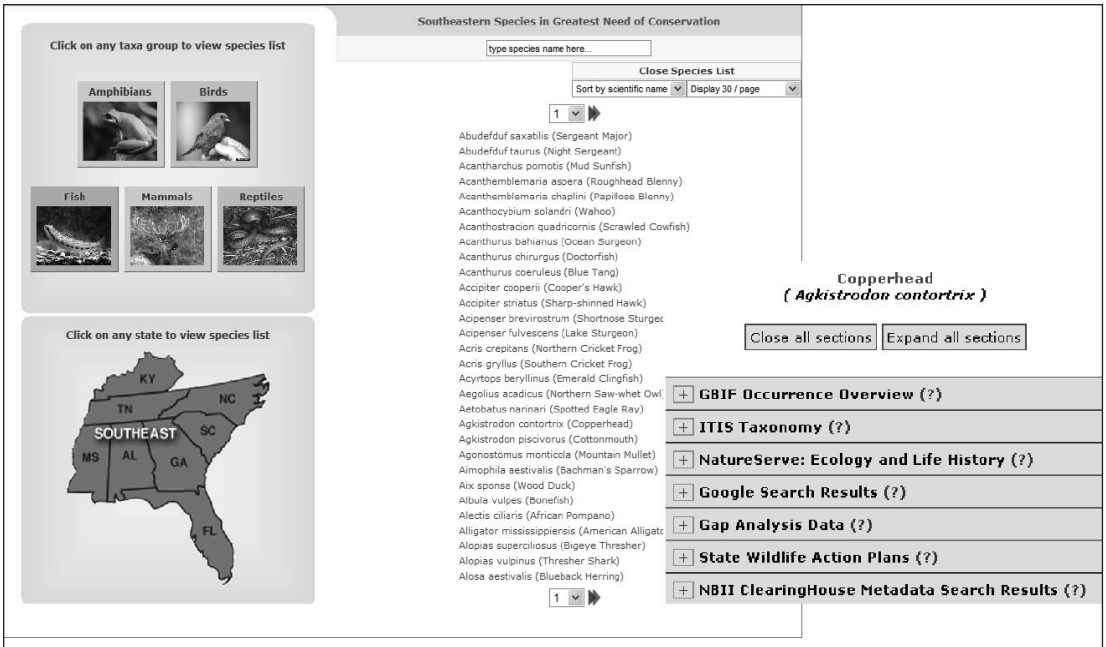


Figure 1 Species in Greatest Conservation Need Mashup Interface

NatureServe (NS), Gap Analysis Program (GAP), NBII Metadata Clearinghouse, Global Biodiversity Information Facility (GBIF), and Google.

For *Access* readers who aren't familiar with these sources, ITIS – a vital NBII component – provides authoritative taxonomic information on plants, animals, fungi, and microbes of North America and the world. NatureServe, an NBII partner, maintains species' life history information gathered from across the nation. GAP, another NBII component, is a scientific means of assessing to what extent native animal and plant species are being protected. The NBII Metadata Clearinghouse helps individuals easily search for, and locate, biological data and information from a variety of sources. GBIF is an international organization that is working to make the world's biodiversity data accessible anywhere in the world (the NBII is the U.S. node for GBIF).

Users can search for species in a number of ways via the Mashup Interface (Figure 1). Users may browse the entire list of species, enter a scientific or common name directly, or narrow the species list by taxa or state. Users may also customize the mashup by selecting from the available sources.

Mashups provide the capability to present compilations of information about a variety of biodiversity topics. In the Pacific Basin, information is being compiled related to Hawaii's threatened and endangered (T & E) species. In addition to the resources used in the SAIN mashups, Hawaii will include information from the vast repositories of the Bishop Museum and other regional information resources.

Figure 2 shows the basic framework upon which the mashup operates. The circle labeled as "Master Species List" is a database of species that can be broken into subsets of highlighted species. For example, one subset represents the southeastern GCN species, while another subset represents all southeastern species. Each of these species subsets has an associated list of specific data sources that, when combined in a single view, provide species highlights from a certain perspective (e.g., GCN Species, Hawaii T&E Species). To view SAIN's species mashups, see "Rare Species and Ecological Communities" at <http://sain.nbii.gov/RareEcology>.

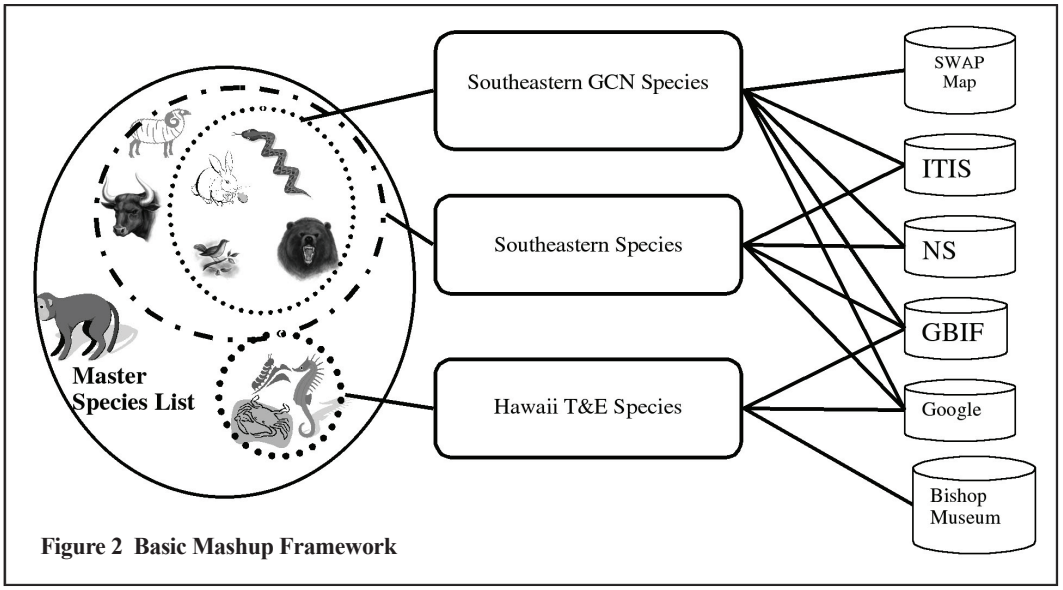


Figure 2 Basic Mashup Framework

New Mapping Application for Breeding Bird Atlas Explorer

Photo credit: Charles H. Warren

Breeding evidence is available on the Baltimore oriole (Icterus galbula) *and scores of other breeding birds through the new mapping application.*

A new mapping application is now available online for the North American Breeding Bird Atlas (BBA) Explorer. The new mapping application for Breeding Bird Atlases complements the National Amphibian Atlas <http://www.pwrc.usgs.gov/naa/>. Both applications run on open source software called MapServer.

The new BBA tool replaces an older ArcIMS mapping application and provides access to BBA species maps. These maps display species breeding evidence compiled from 30 atlas projects across North America (including the United States and Canada). No other single location – on or off the Web – offers such comprehensive, integrated information on Breeding Bird Atlases.

Breeding Bird Atlases are bird population surveys of extensive areas using a grid-based (block) system and are usually organized at the state or provincial level. The BBA Explorer is a uniform system developed by USGS Patuxent Wildlife Research Center, with support from the NBII Bird Conservation Node, for access to published BBA data and interim data from ongoing BBA projects in North America.

To see the new application in action, just go to BBA Explorer at <http://www.pwrc.usgs.gov/bba/> and look for the section titled "Status of North American Atlases." Scroll below the map of North America to "View Combined BBA Species Maps" and click on it. Then click on "Select a Species" (beneath the map) to select one of hundreds of species to view. Hit "Re-Draw" to see the breeding evidence available on that species.

The legend to the right of the map indicates that the colors appearing on the redrawn map represent breeding evidence, which ranges from

(Continued on back cover)

Tens of Thousands Visit NBII's Home Page Monthly

Many Web sites keep track of the amount of "traffic" they experience from their users, and the NBII is no exception. The NBII currently uses a statistical package called AWStats to monitor the amount of its Web activity. This process does not involve collecting any personal information that would identify the actual users of the Web site, so it is consistent with the regulatory standards of the federal government protecting the privacy of users of government sites.

Web site statistics programs are capable of generating an enormous amount of detailed information on a Web site's activity, based on the "log files" that Web servers routinely record and maintain.

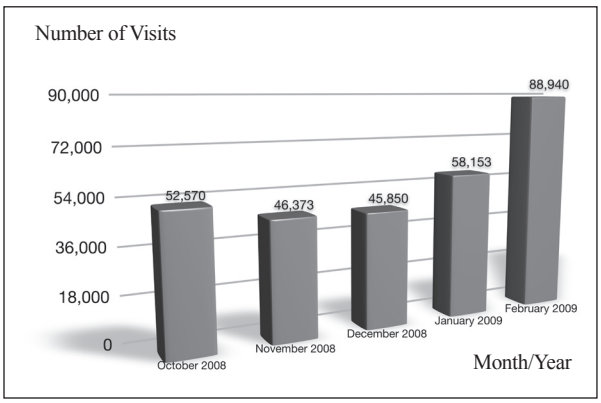
Some key measures of Web site activity that are frequently reported in Web site statistics include the number of page views and visits, all broken down by hour, day, week, month, and year. Other common elements tracked include the number of visits originating in identified foreign countries and the most heavily used pages within a site.

Perhaps the most useful figure to track is the trend in the number of visits to a Web site from month to month. A visit is defined as the point at which someone enters a site at any page and for any duration, looking at one or more of the site's pages and lasting until the visitor leaves the site entirely for another Web destination.

The number of page views is simply the cumulative number of views of any one of a Web site's pages by all of its users together, irrespective of how many individual users there are or how many visits are actually involved.

From October 2008 through February 2009, visits to the NBII's home page and related pages ranged from about 45,000 to almost 89,000 per month. Page views ranged from around 411,000 in November 2008 to more than 789,000 in December 2008. These figures do not include visits and page views on the NBII geographic and thematic node sites directly.

Statistical details of activity on selected pages of the NBII, including pages within the geographic and thematic node sites, can be found by clicking on the Toolkit link on the NBII home page and then clicking on the Stats link at the bottom of the navigation box along the left side of the Toolkit page.



The home page has gotten lots of use in recent months.

NBII in the News

The NBII is mentioned throughout the year in a variety of venues. Here are a few of the most recent examples:

- Invasive Plant Atlas of New England's (IPANE) Dr. Les Mehrhoff was recently interviewed about his work at Harvard's Arnold Arboretum in an article titled "The Weeds and the Wilderness, An Interview with Les Mehrhoff on the Spontaneous Flora of the Arnold Arboretum." The piece highlights Mehrhoff's contributions to the conservation of native biodiversity in New England by his studies of distribution and ecology of invasive plants in the area. The article is available in the Fall/Winter 2008-2009 issue of *Silva*, the news magazine of the Arnold Arboretum at <http://www.arboretum.harvard.edu/aboutus/silva/fall_2008/silva_fall_08.pdf.> IPANE is a partner of both the Northeast and Invasive Species Information nodes.
- The USGS-dedicated edition of the *Endangered Species Bulletin* (Fall 2008) is now available on the U.S. Fish and Wildlife Service (USFWS) Web site <http://www.fws.gov/Endangered/bulletin/2008/bulletin_fall2008.pdf>. Jen Carlino, node manager for four NBII nodes, authored one chapter that describes several projects in which the NBII participates that help meet information needs for the conservation of threatened and endangered species. Those activities include the Midwinter Bald Eagle Survey Count (the NBII works with scientists from the USGS, U.S. Army Corps of Engineers, and Oregon State University to provide a standardized method of retrieving data collected each season and five-year summary analyses), Butterflies and Moths of North America (the NBII works with Montana State University to help provide the most comprehensive online distribution record of butterfly and moth species available for this region), Infectious Hematopoietic Necrosis Virus (IHNV) Fish Virus Database (allows fish managers and researchers to access information about virus strains within various watersheds and have a means for comparing emerging strains), and the Southern California Data Integration Project (the NBII facilitates Web access to previously inaccessible species occurrence data so that USFWS biologists and other managers can make decisions based on the best available information, thereby enhancing species conservation in the state).
- The editors of the *Encyclopedia of Library and Information Sciences* just accepted and sent to publication an article by Drs. P. Bryan Heidorn, Program Director of the Division of Biological Infrastructure of the National Science Foundation, and Annette Olson, a scientist sited in the NBII Program Office. The article, titled "The National Biological Information Infrastructure (NBII)," will be featured in the third edition of the encyclopedia, which reviews information networks and disciplines. The article presents the early to recent history, organizational structure, and objectives of the NBII as well as the data and information network, discovery mechanisms, and tools that the NBII produces to help support resource management. The full encyclopedia will be published by The Taylor & Francis Group, New York, in fall 2009.

Photo credit: Charles H. Warren

Bald Eagle (Haliaeetus leucocephalus)

NBII Home Page Redesign Is Coming (continued from page 1)

In the new design, there will be multiple ways to navigate through and explore the NBII. A new, much more powerful search engine will be implemented in 2009, in parallel with the home page redesign. There will also be enhanced browsing features, such as an A-to-Z index of the major features of the NBII, added to supplement the search engine.

The long-range plan is to connect the themes and details on the home page with an editorial calendar of events and occasions significant for biodiversity (such as Earth Day).

The NBII is moving toward continual reappraisal of the home page, with small and large changes made in response to changes in user traffic on the page and in Web technology and design standards generally.

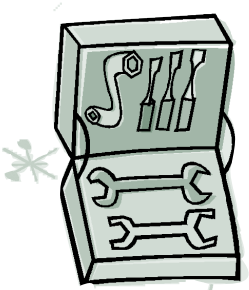
Look for the new NBII home page to appear in spring 2009.

Invasive Species Toolbox

Do you have news about an invasive species project you would like to share through this column? The Toolbox is a collection of useful items and highlights related to invasive species information management issues. Please send any ideas or suggestions for Toolbox columns to <asimpson@usgs.gov> or <esellers@usgs.gov>.

Nonindigenous Aquatic Species Data Portal NISbase Now Queries 10 Databases

NISbase <http://www.nisbase.org> is a distributed database that queries 10 databases on aquatic nonindigenous species using XML (Extensible Markup Language). NISbase – created by the Smithsonian Environmental Research Center's Marine Invasions Lab and the U.S. Geological Survey's Nonindigenous Aquatic Species Program – operates similarly to sites such as Expedia.com. With a single query, a user can simultaneously search multiple databases for information about nonindigenous aquatic species. The minimal technical expertise required for a database to participate in NISbase allows for greater participation. Within the last year, four new databases have been added: the Guide to the Exotic Species of San Francisco Bay, the Marine Invader Tracking Information System of the Massachusetts Institute of Technology's Sea Grant College Program, the North European and Baltic Network on Invasive Alien Species (NOBANIS), and the NOAA National Benthic Inventory. For more information on NISbase, contact Pam Fuller at <pfuller@usgs.gov>.



Data Provider Workshop for Global Invasive Species Information Network (GISIN)

The GISIN is an open, self-sustaining digital network facilitating access to accurate and relevant invasive species information. Members of the GISIN have created a system to enable the cross-search of online invasive species databases and are seeking broader participation and new data providers. To promote interoperability among invasive species databases in the United States, an open workshop for invasive species database managers and technical leads will be held July 26–29, 2009, at Elmira College in Elmira, NY. The meeting's purpose is to teach database technical leads about the Web services needed to share their information using the GISIN system. Limited travel funding will be made available for potential data providers who could not otherwise attend. If you would like to become a GISIN data provider and/or participate in this workshop, contact Annie Simpson at <asimpson@usgs.gov>.

Photo credit: Annie Simpson, NBII

Participants at 2008 GISIN workshop discuss invasive species data standards.

Organized Oral Session on Standards, Protocols, and Tools for Sharing Ecological Information

Nine experts in biodiversity information standards will give presentations at an Organized Oral Session coordinated by the NBII's Annie Simpson, Elizabeth Sellers, and Viv Hutchison at the Ecological Society of America (ESA) Annual Meeting. The use of data standards and protocols for gathering, documenting, and exchanging ecological data is crucial to sharing knowledge and resources on a global scale. Effective data management depends on the use of data standards and protocols to make high-quality data easy to find, access, share, and use. This session has been organized to introduce and illustrate the importance of data standards, protocols, and applications, showing how their use benefits global ecological research. The session will open by addressing how developments in taxonomic work have benefited global information sharing. This will be followed by presentations about the use or application of standards such as the Federal Geographic Data Committee (FGDC) Standard, the NBII Biocomplexity Thesaurus, the GISIN Protocol, and Ecological Metadata Language (EML). For more information about this session and the 2009 ESA Annual Meeting, go to <http://www.esa.org/albuquerque/> or contact Annie <asimpson@usgs.gov>, Elizabeth <esellers@usgs.gov>, or Viv <vhutchison@usgs.gov>. Hope we see you there!

International Connections

Pacific Biodiversity Information Forum Develops Improved Pacific Protected Areas Database

Created in 2003, the Pacific Protected Areas Database (PPAD) is an ongoing effort to document protected areas in the Pacific Islands region of Oceania (Micronesia, Melanesia, and Polynesia). The foundation for the database was a list of protected areas drafted at the 7th Pacific Islands Conference on Nature Conservation and Protected Areas in the Cook Islands in 2002. The database was verified using sources including the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), Reefbase, UN-Earthwatch, the South Pacific Regional Environment Programme (SPREP), World Wildlife Fund-Ecoregions 200, the Cook Islands-Papua New Guinea (CI-PNG) database, the Action Strategy for Nature Conservation in the Pacific Islands Region, and numerous country sources and independent site studies.

The PPAD went through an expert review process as part of the Polynesia-Micronesia Ecoregional profile process led by Conservation International. Relevant sections of the database were sent to a selection of organizations, experts, and the governments of each country for review and to update and verify database information. The database was also distributed on CD to make the information readily available to computer users without access to the Internet or lacking sufficient bandwidth to easily access the Web site.

Since this original design, Pacific Biodiversity Information Forum (PBIF) staff has continued to update the database for the Pacific region, focusing initially on islands associated with the United States. Additions to the records include management information, environmental descriptions, species lists, maps, images, and additional documentation. Guam and the Commonwealth of the Northern Mariana Islands (CNMI) have been completed. Palau is the next island group scheduled for review. The 2008 version of the database is available at <http://www.pbif.org/PPADB/default.asp>. An updated version of the database with Guam, CNMI, Palau, Republic of the Marshall Islands, Federated States of Micronesia, and the Hawaiian Islands is scheduled for 2009.

PBIF was established in 2003 under the Pacific Science Association's task force on Biodiversity and Conservation as a mechanism to support collaboration on common biodiversity interests in the region. Since that time, PBIF has been implementing the program of work articulated by regional representatives, which calls for the development of links to existing biodiversity information, building partnerships, and working to develop and improve information products, services, and capacity for the region. More information can be found on <www.pbif.org> or by contacting Dr. Mark Fornwall at <mark_fornwall@usgs.gov> or Rhyn Davies at <rdavies@usgs.gov>.

Photo credit: AK Kepler

Red-tailed tropicbird (Phaethon rubricauda) *from Takutea Island, a protected area in the Cook Islands.*

IABIN Completes Mid-Term Evaluation

The Inter-American Biodiversity Information Network (IABIN) recently completed an in-depth review of the progress to date on the Global Environment Facility (GEF) project that is funding its development. This Mid-Term Evaluation is standard for all GEF projects and provides valuable information on the project's progress to both the World Bank and the GEF.

An outside consultant was hired to complete the review, ensuring its impartiality and providing a valuable outsider perspective on the implementation and plans of IABIN. The lessons learned from the initial three years of the project will assist IABIN management in making any needed modifications in the 2009-2010 timeframe, and help guide dissemination and outreach efforts for the data and tools IABIN will create. For more information, please contact Ben Wheeler at <bwheeler@usgs.gov>.

Coordinated by the U.S. Geological Survey (USGS), the NBII is a broad, collaborative program to provide increased access to data and information on the nation's biological resources. The NBII International Program participates in worldwide biological informatics activities that promote information sharing and infrastructure development across borders.

New Mapping Application for Breeding Bird Atlas Explorer (continued from page 4)

"confirmed" to "probable" to "possible" to "observed." You can click on "zoom in" and "zoom out," and then hit "re-draw," depending on whether you want to see your chosen species related to a more- or less-specific geographic area. To learn additional details about the mapping application, click on "User Guide," "Layers," and/or "Data Source."

"We're very pleased that the NBII contributed to making the BBA Explorer and its mapping tool a reality," said Elizabeth Martín, node manager of the Bird Conservation Node. "This resource provides users with a one-stop Web site for accessing Breeding Bird Atlas data in North America."

The next issue of *Access* will see the NBII Digital Image Library (DIL) come to LIFE. Stay tuned!

Upcoming Events of NBII Interest

2009 East Tennessee Environmental Conference, Kingsport, TN.	March 10–11
74th North American Wildlife and Natural Resources Conference, Arlington, VA.	March 16–21
Water Quantity: Ongoing Problems and Emerging Solutions, Oxford, MS.	March 24–25
The 2009 Northwest Scientific Association Meeting, Seattle, WA.	March 25–28
2009 Joint Scientific Meeting of Wilson Ornithological Society and Association of Field Ornithologists, Pittsburgh, PA.	April 9–12
79th Meeting of the Cooper Ornithological Society, Tucson, AZ.	April 16–18

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